

# MANUFACTURING METHODS AND APPARATUSES OF AN OPTICAL DEVICE AND A REFLECTION PLATE PROVIDED WITH A RESIN THIN FILM HAVING A MICRO-ASPERITY PATTERN

## Abstract

A method for manufacturing an optical device is disclosed. The method includes coating a substrate with a resin thin layer, wherein temperature of the resin thin layer is controlled lower than a polymerization reaction starting temperature thereof and the resin is not substantially polymerized, heating the resin thin layer to a temperature higher than polymerization reaction starting temperature and glass-transition temperature but lower than a thermal decomposition starting temperature of the resin so that the resin thin layer is polymerized on the substrate to form a resin thin film thereon, pressing a stamp having an inverted micro-asperity pattern against the resin thin film such that a micro-asperity pattern is formed on a surface of the resin thin film; cooling the resin thin film to a temperature lower than the glass-transition temperature; and separating the stamp from the resin thin film.

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